## MYSORE AGRICULTURAL DEPARTMENT.

### CIRCULAR No. 3.

### *Koleroga of Supari.*

The work in connection with Koleroga of Supari for the summer of 1911 is already being arranged for. During the summer of 1910 spraying was done in 46 different gardens. In most cases where Koleroga appeared in any part of the garden a record was kept, at the harvest, of the damage done on the sprayed portion and on a kotte-tied portion of equal extent close beside it. Records are, thus, available from twenty-two gardens and in all of these, with two exceptions, spraying has given better results than kotte-tying. In almost all cases where no record could be kept, owing to lack of sufficient staff for the purpose, a statement was received from the garden-owner that spraying had been decidedly better than kotte-tying. In one of the two cases where spraying did not give better results than kotte-tying, the losses on the sprayed area were practically the same as on the kotte-tied area (9 per cent of loss on sprayed area, 8·6 per cent of loss on kotte-tied area). In the other case (Basti in Nagar Taluk) the sprayed part of the garden had been leased from the owner and he had therefore no interest in looking after the crop and no officer of the Department was available to look after the garden. The result was that a number of the best bunches were removed before the proper harvest and no account of them could be kept. How many were removed is not known but in all probability the number was fairly large as only 328 bunches remained on 358 trees, a number which is exceedingly small. It is clear then that the results from this garden cannot be taken into consideration.

An examination of the records from the other gardens shows that spraying has given a better result than kotte-tying, varying from 1 per cent to 26 per cent or about one-fourth of the crop. The following table shows in a general way just how much better spraying has proved than kotte-tying in the garden where records were kept:—

| | |
|---|---|
| Spraying has saved between 1% and 5% more crop than kotte-tying (In most of these cases the attack had been light and the loss was comparatively small.) | in 8 gardens |
| Spraying has saved between 5% and 10% more crop than kotte-tying | in 4 gardens |
| Spraying has saved between 10% to 15% more crop than kotte-tying | in 4 gardens |
| Spraying has saved between 15% and 20% more crop than kotte-tying | in 2 gardens |
| Spraying has saved between 20% and 30% more crop than kotte-tying | in 2 gardens |

In all the other gardens except the two mentioned above, there was either no attack whatever or the attack on the sprayed area was very much lighter than that on the kotte-tied area. It was found impossible to keep a record in all the gardens, so those were chosen for the purpose where the results were least satisfactory.

In a few cases (seven out of the forty-six) a second spraying was given to some of the trees that had been previously sprayed. This was necessary, partly at least, on account of the extreme length of duration of the monsoon in 1910 which extended up to October. This second spraying was done towards the end of August or in September and in every case stopped the spread of the disease at once. Where the rainfall is very heavy and the monsoon is prolonged such a second treatment of some of the trees will be necessary and if done properly and at the right time will pay for itself many times.

Now as to the cost of materials, an accurate account was kept of the amount of materials used in each garden and the number of trees sprayed; and from these figures an estimate of the cost per 400 trees has been made. There has been considerable difference in the cost in different gardens due in part to the size and number of the bunches and in part to the fact that a good deal of material has been

wasted in some cases. The following table shows the cost in some of the gardens:—

| Cost of material per 400 trees. | Number of gardens. |
|---|---|
| Re. 1 to Rs. 1-15-0 ... | in 2 gardens. |
| Rs. 2 to „ 3 ... | „ 18 „ |
| Rs. 3 to „ 4 ... | „ 19 „ |
| Rs. 4 to „ 5 ... | „ 4 „ |
| Above Rs. 5 ... | „ 3 „ |

The total expenses of spraying including the wages of climbers has been furnished by fifteen of the garden-owners and has varied between Rs. 5-10-0 and Rs. 15-3-0. In only five of the fifteen cases have the total expenses exceeded Rs. 8 per 400 trees which can be taken as about the lowest rate at which the tying of kottes alone could be done on this number of trees leaving out of account altogether the cost of the kottes.

Up to the present over 100 applications have been received from garden-owners for spraying in their gardens in 1911. This number will be greatly increased within the next few weeks and all those wishing to try spraying should make application at once as it is possible that not all the applications can be accepted owing to lack of staff and sprayers. Applications should be addressed to me at Bangalore up to the 12th of May and after that date to Mr. M. K. Venkata Rao, Assistant Mycologist at Talaguppe (for Sagar and Nagar Taluks), and to Fieldman Stephen Ansir at Tirthahalli (for Tirthahalli and Koppa Taluks). These two officers will also receive applications in person at any time.

The formula that has been employed in preparing the Bordeaux mixture for treating the Koleroga of Supari consists of 5 lbs. of copper sulphate (blue stone) and 5 lbs. of unslaked lime in 25 gallons of water. The copper sulphate is dissolved in 12 gallons of water in a wooden vessel (an earthenware one would also do but in no case should an iron vessel be used). This is best done by placing the copper sulphate pounded up rather fine in a coarse cloth bag and suspending it in the water till it is entirely dissolved. The lime is placed in another vessel which may be of wood, earthenware or iron, and water is slowly sprinkled over it till the lumps of lime have broken up into fine particles. Then the whole of the twelve gallons of water may be poured in with constant stirring. To make the completed mixture, equal quantities of lime water and copper sulphate solution are taken and poured into a third vessel with constant stirring or the lime water is poured into the solution of copper sulphate. The completed mixture should have a light blue colour (on no account green) and should leave no deposit of copper on a clean knife-blade dipped into it for half a minute. The adhesive used is made by mixing 2 lbs. of resin, such as used by tinsmiths, and 1 lb. of washing soda and adding to this one gallon of water. The whole is then heated for about an hour till the mass has become quite clear.

For those who are not familiar with the above weights and measures, it may be noted that one gallon is equal to 4 measuring seers and one pound is equal to 40 tolas.

The mixture used is therefore made up as follows:—

(*a*) 5 lbs. of copper sulphate dissolved in 12 gallons of water.

(*b*) 5 lbs. of lime slaked in 12 gallons of water.

(*c*) 2 lbs. of resin and 1 lb. of soda heated in one gallon water till quite clear (about an hour),

(*b*) is poured into (*a*) accompanied by constant stirring and then (*c*) is added to make up the completed mixture.

It need hardly be pointed out that any quantity can be made up at one time down to one gallon of the completed mixture, it being only necessary to keep the same proportions throughout. In practice it is always wise to make up just sufficient for one day's work as the mixture should be used fresh. Where only small wooden or earthenware vessels are available it will be necessary to make up smaller quantities at a time.

LESLIE C. COLEMAN, M.A., PH.D.,
*Mycologist and Entomologist.*